

What is claimed is:

1. An apparatus for providing information by speech, comprising:

analyzing means of extracting all or some of words from an input sentence based on a predetermined criterion, replacing the extracted words with standard words by use of predetermined relation information, selecting a standard sentence pattern most relevant to the input sentence from among a plurality of prepared standard sentence patterns by use of the standard words, and replacing all or some of the standard words of the selected standard sentence pattern with the corresponding words; and

speech synthesizing means of performing speech synthesis of the sentence on which the word replacement has been performed, by use of prosody information previously assigned to at least the selected standard sentence pattern,

wherein said relation information is such that to the predetermined standard words, words relevant to the standard words are related.

2. An apparatus for providing information by speech according to claim 1, wherein said predetermined criterion is selection of a word occurring in the relation information.

3. An apparatus for providing information by speech, comprising:

analyzing means of extracting all or some of words from an input sentence based on a predetermined criterion, and selecting a standard sentence pattern most relevant to the input sentence from among a plurality of

prepared standard sentence patterns by use of the extracted words; and

speech synthesizing means of performing speech synthesis of the selected standard sentence pattern by use of prosody information previously assigned to at least the selected standard sentence pattern,

wherein said predetermined criterion is selection of a word coinciding with any of words registered in the prepared standard sentence patterns.

4. An apparatus for providing information by speech, comprising:

analyzing means of extracting all or some of words of a first language from an input sentence of the first language based on a predetermined criterion, replacing the extracted words of the first language with standard words of a second language by use of predetermined relation information, selecting a standard sentence pattern of the second language most relevant to the input sentence from among a plurality of prepared standard sentence patterns of the second language by use of the standard words of the second language, and replacing all or some of the standard words of the second language of the selected standard sentence pattern of the second language with words of the second language corresponding to words of the first language corresponding to the standard words of the second language; and

speech synthesizing means of performing speech synthesis of the sentence on which the word replacement has been performed, by use of prosody information previously assigned to at least the selected standard sentence pattern of the second language,

wherein said relation information is such that to the predetermined standard words of the second language, words of the first language relevant to the standard words of the second language are related.

5. An apparatus for providing information by speech, comprising:

analyzing means of extracting all or some of words of a first language from an input sentence of the first language based on a predetermined criterion, replacing the extracted words of the first language with standard words of the first language by use of predetermined relation information, selecting a standard sentence pattern of the first language most relevant to the input sentence from among a plurality of prepared standard sentence patterns of the first language by use of the standard words of the first language, identifying a predetermined standard sentence pattern of a second language associated with the selected standard sentence pattern of the first language, and replacing all or some of standard words of the second language of the identified standard sentence pattern of the second language with words of the second language equivalent to the input words of the first language corresponding to the standard words of the first language corresponding to the standard words of the second language; and

speech synthesizing means of performing speech synthesis of the sentence on which the word replacement has been performed, by use of prosody information previously assigned to at least the selected standard sentence pattern of the second language,

wherein said relation information is such that to the predetermined standard words of the first language,

words of the first language relevant to the standard words of the first language are related.

6. An apparatus for providing information by speech according to claims 4-5, wherein said predetermined criterion is selection of a word of the first language occurring in the relation information.

7. An apparatus for providing information by speech, comprising:

analyzing means of extracting all or some of words of a first language from an input sentence of the first language based on a predetermined criterion, and selecting a standard sentence of a second language most relevant to the input sentence from among a plurality of prepared standard sentence patterns of the second language by use of words of the second language corresponding to the extracted words of the first language; and

speech synthesizing means of performing speech synthesis of the selected standard sentence pattern of the second language by use of prosody information previously assigned to at least the selected standard sentence pattern of the second language,

wherein said predetermined criterion is selection of a word of the first language corresponding to a word of the second language registered in the prepared standard sentence patterns of the second language.

8. An apparatus for providing information by speech, comprising:

analyzing means of extracting all or some of words of a first language from an input sentence of the first language based on a predetermined criterion,

selecting a standard sentence pattern of the first language most relevant to the input sentence of the first language from among a plurality of prepared standard sentence patterns of the first language by use of the extracted words of the first language, and identifying a predetermined standard sentence pattern of a second language corresponding to the selected standard sentence pattern of the first language; and

speech synthesizing means of performing speech synthesis of the identified standard sentence pattern of the second language by use of prosody information previously assigned to at least the identified standard sentence pattern of the second language,

wherein said predetermined criterion is selection of a word of the first language coinciding with any of words of the first language registered in the prepared standard sentence patterns of the first language.

9. An apparatus for providing information by speech, comprising:

analyzing means of extracting all or some of words from an input sentence based on a predetermined criterion, replacing the extracted words with standard words by use of predetermined relation information, selecting a standard sentence pattern most relevant to the input sentence from among a plurality of prepared standard sentence patterns by use of the standard words, identifying a predetermined response standard sentence pattern corresponding to the selected standard sentence pattern, and replacing all or some of the standard words of the identified response standard sentence pattern with the corresponding words; and

speech synthesizing means of performing speech synthesis of the sentence on which the word replacement has been performed, by use of prosody information previously assigned to at least the identified response standard sentence pattern,

wherein said relation information is such that to the predetermined standard words, words relevant to the standard words are related.

10. An apparatus for providing information by speech according to claim 9, wherein said predetermined criterion is selection of a word occurring in the relation information.

11. An apparatus for providing information by speech, comprising:

analyzing means of extracting all or some of words from an input sentence based on a predetermined criterion, selecting a standard sentence pattern most relevant to the input sentence from among a plurality of prepared standard sentence patterns by use of the extracted words, and identifying a predetermined response standard sentence pattern corresponding to the selected standard sentence pattern; and

speech synthesizing means of performing speech synthesis of the identified response standard sentence pattern by use of prosody information previously assigned to at least the identified response standard sentence pattern,

wherein said predetermined criterion is selection of a word the same as a word registered in the prepared standard sentence patterns.

12. An apparatus for providing information by speech according to any of claims 1, 2, 4, and 7-10, wherein when replacing the standard words of the selected standard sentence pattern with the words, said analyzing means leaves, of the standard words of the selected standard sentence pattern, standard words not corresponding to the words as they are, or replaces the standard words not corresponding to the words with predetermined words.

13. An apparatus for providing information by speech according to any of claims 1-5 and 7-11, wherein all or some of the prepared standard sentence patterns are each associated with a predetermined operation and/or image data.

14. An apparatus for providing information by speech according to claim 13, wherein all or some of the prepared standard sentence patterns are each associated with a predetermined operation, and when selecting or identifying the standard sentence pattern, said analyzing means also identifies the operation corresponding to the standard sentence pattern, and the identified operation is performed when said speech synthesizing means outputs a result of the speech synthesis.

15. An apparatus for providing information by speech according to claim 13, wherein all or some of the prepared standard sentence patterns are each associated with a predetermined image, and when selecting or identifying the standard sentence pattern, said analyzing means also identifies the image corresponding to the standard sentence pattern, and the identified image is displayed when said speech synthesizing means outputs a result of the speech synthesis.

16. An apparatus for providing information by

speech according to any of claims 1-5 and 7-11, comprising signal processing means of analyzing an input signal and generating one word or a plurality of words in accordance with a result of the analysis,

wherein said input sentence is the generated word or words.

17. An apparatus for providing information by speech according to claim 16, wherein said input signal is at least one of a speech, a sound, an image, a vibration, an acceleration, a temperature and a tension.

18. An apparatus for providing information by speech according to claim 17, wherein said input signal is at least a speech, and said signal processing means performs speech recognition of the input speech and generates one word or a plurality of words in accordance with a result of the speech recognition.

19. An apparatus for providing information by speech according to claim 17, wherein said input signal is at least a sound, and said signal processing means recognizes a sound source of the input sound and generates one word or a plurality of words in accordance with a result of the sound source recognition.

20. An apparatus for providing information by speech according to claim 17, wherein said input signal is at least an image, and said signal processing means analyzes the input image and generates one word or a plurality of words in accordance with a result of the analysis.

21. An apparatus for providing information by speech according to any of claims 1-5 and 7-11, wherein



there is a possibility that the input sentence is incomplete.

22. An apparatus for providing information by speech according to claim 21, wherein that there is a possibility that the input sentence is incomplete is a case where there is a possibility that all or a part of the input sentence is omitted, a case where there is a possibility that all or a part of the input sentence is replaced with an irrelevant sentence, or a case where there is a possibility that an irrelevant sentence is inserted in the input sentence.

23. An apparatus for providing information by speech according to claim 22, wherein when said analyzing means fails in the selection of the standard sentence pattern because all or a part of the input sentence is omitted or all or a part of the input sentence is replaced with an irrelevant sentence, said speech synthesizing means does not perform the speech synthesis.

24. An apparatus for providing information by speech according to any of claims 1-5 and 7-11, wherein a part of the input sentence are any of sentences, phrases, bunsetsu, and words.

25. An apparatus for providing information by speech according to claim 21, wherein that there is a possibility that the input sentence is incomplete is a case where there is a possibility that the input sentence is a grammatically incomplete sentence including a colloquial expression, a case where there is a possibility that the input sentence is an enumeration of words, a case where the input sentence includes a literal error or an omitted word, or a case where there is a possibility that the input sentence is not a sentence but an expression comprising

symbols and words.

26. An apparatus for providing information by speech according to claim 21, wherein when the input sentence is a sentence generated as a result of a speech recognition result, that there is a possibility that the input sentence is incomplete is a case where there is a possibility that the speech recognition result includes a recognition error, or a case where there is a possibility that the speech recognition is a failure so that a recognition result corresponding to all or part of the input speech on which the speech recognition is performed is not output as the speech recognition result.

27. An apparatus for providing information by speech according to any of claims 1-5 and 7-11, wherein said prosody information is a speech waveform obtained by recording a naturally generated speech of the standard sentence pattern assigned the prosody information.

28. An apparatus for providing information by speech according to any of claims 1-5 and 7-11, wherein said prosody information is information extracted from a naturally generated speech of the standard sentence pattern assigned the prosody information.

29. An apparatus for providing information by speech according to claim 28, wherein said extracted information includes at least one of a fundamental frequency pattern, an intensity pattern, a phoneme duration pattern and a speech rate of the speech.

30. An apparatus for providing information by speech according to any of claims 1-5 and 7-11, wherein said prosody information is associated with at least one of the following conditions: a phoneme string; the number of

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morae, the number of syllables; an accent; a position in a sentence; presence or absence and a duration of an immediately preceding or succeeding pause; an accent type of an immediately preceding or succeeding accent phrase; prominence; a string of parts of speech; a bunsetsu attribute; and a dependency relation.

31. An apparatus for providing information by speech according to any of claims 1-5 and 7-11, wherein said prosody information is stored in prosody generation units, and said prosody generation units are any of accent phrases, phrases, words and clauses.

32. A method for providing information by speech, comprising the steps of:

extracting all or some of words from an input sentence based on a predetermined criterion, and replacing the extracted words with standard words by use of predetermined relation information;

selecting a standard sentence pattern most relevant to the input sentence from among a plurality of prepared standard sentence patterns by use of the standard words;

replacing all or some of the standard words of the selected standard sentence pattern with the corresponding words; and

performing speech synthesis of the sentence on which the word replacement has been performed, by use of prosody information previously assigned to at least the selected standard sentence pattern,

wherein said relation information is such that to the predetermined standard words, words relevant to the

standard words are related.

33. A method for providing information by speech, comprising the steps of:

extracting all or some of words from an input sentence based on a predetermined criterion, and selecting a standard sentence pattern most relevant to the input sentence from among a plurality of prepared standard sentence patterns by use of the extracted words; and

performing speech synthesis of the selected standard sentence pattern by use of prosody information previously assigned to at least the selected standard sentence pattern,

wherein said predetermined criterion is selection of a word coinciding with any of words registered in the prepared standard sentence patterns.

34. A program for causing a computer to function as all or some of the following means of the apparatus for providing information by speech according to claim 1:

analyzing means of extracting all or some of words from an input sentence based on a predetermined criterion, replacing the extracted words with standard words by use of predetermined relation information, selecting a standard sentence pattern most relevant to the input sentence from among a plurality of prepared standard sentence patterns by use of the standard words, and replacing all or some of the standard words of the selected standard sentence pattern with the corresponding words; and

speech synthesizing means of performing speech synthesis of the sentence on which the word replacement has been performed, by use of prosody information previously

assigned to at least the selected standard sentence pattern.

35. A program for causing a computer to function as all or some of the following means of the apparatus for providing information by speech according to claim 3:

analyzing means of extracting all or some of words from an input sentence based on a predetermined criterion, and selecting a standard sentence pattern most relevant to the input sentence from among a plurality of prepared standard sentence patterns by use of the extracted words; and

speech synthesizing means of performing speech synthesis of the selected standard sentence pattern by use of prosody information previously assigned to at least the selected standard sentence pattern.

36. A program for causing a computer to function as all or some of the following means of the apparatus for providing information by speech according to claim 4:

analyzing means of extracting all or some of words of a first language from an input sentence of the first language based on a predetermined criterion, replacing the extracted words of the first language with standard words of a second language by use of predetermined relation information, selecting a standard sentence pattern of the second language most relevant to the input sentence from among a plurality of prepared standard sentence patterns of the second language by use of the standard words of the second language, and replacing all or some of the standard words of the second language of the selected standard sentence pattern of the second language with words of the second language corresponding to words of the first

language corresponding to the standard words of the second language; and

speech synthesizing means of performing speech synthesis of the sentence on which the word replacement has been performed, by use of prosody information previously assigned to at least the selected standard sentence pattern of the second language.

37. A program for causing a computer to function as all or some of the following means of the apparatus for providing information by speech according to claim 5:

analyzing means of extracting all or some of words of a first language from an input sentence of the first language based on a predetermined criterion, replacing the extracted words of the first language with standard words of the first language by use of predetermined relation information, selecting a standard sentence pattern of the first language most relevant to the input sentence from among a plurality of prepared standard sentence patterns of the first language by use of the standard words of the first language, identifying a predetermined standard sentence pattern of a second language associated with the selected standard sentence pattern of the first language, and replacing all or some of standard words of the second language of the identified standard sentence pattern of the second language with words of the second language equivalent to the input words of the first language corresponding to the standard words of the first language corresponding to the standard words of the second language; and

speech synthesizing means of performing speech synthesis of the sentence on which the word replacement has been performed, by use of prosody information previously

assigned to at least the selected standard sentence pattern of the second language.

38. A program for causing a computer to function as all or some of the following means of the apparatus for providing information by speech according to claim 7:

analyzing means of extracting all or some of words of a first language from an input sentence of the first language based on a predetermined criterion, and selecting a standard sentence pattern of a second language most relevant to the input sentence from among a plurality of prepared standard sentence patterns of the second language by use of words of the second language corresponding to the extracted words of the first language; and

speech synthesizing means of performing speech synthesis of the selected standard sentence pattern of the second language by use of prosody information previously assigned to at least the selected standard sentence pattern of the second language.

39. A program for causing a computer to function as all or some of the following means of the apparatus for providing information by speech according to claim 8:

analyzing means of extracting all or some of words of a first language from an input sentence of the first language based on a predetermined criterion, selecting a standard sentence pattern of the first language most relevant to the input sentence of the first language from among a plurality of prepared standard sentence patterns of the first language by use of the extracted words of the first language, and identifying a predetermined standard sentence pattern of a second

language corresponding to the selected standard sentence pattern of the first language; and

speech synthesizing means of performing speech synthesis of the identified standard sentence pattern of the second language by use of prosody information previously assigned to at least the identified standard sentence pattern of the second language.

40. A program for causing a computer to function as all or some of the following means of the apparatus for providing information by speech according to claim 9:

analyzing means of extracting all or some of words from an input sentence based on a predetermined criterion, replacing the extracted words with standard words by use of predetermined relation information, selecting a standard sentence pattern most relevant to the input sentence from among a plurality of prepared standard sentence patterns by use of the standard words, identifying a predetermined response standard sentence pattern corresponding to the selected standard sentence pattern, and replacing all or some of the standard words of the identified response standard sentence pattern with the corresponding words; and

speech synthesizing means of performing speech synthesis of the sentence on which the word replacement has been performed, by use of prosody information previously assigned to at least the identified response standard sentence pattern.

41. A program for causing a computer to function as all or some of the following means of the apparatus for providing information by speech according to claim 11:



analyzing means of extracting all or some of words from an input sentence based on a predetermined criterion, selecting a standard sentence pattern most relevant to the input sentence from among a plurality of prepared standard sentence patterns by use of the extracted words, and identifying a predetermined response standard sentence pattern corresponding to the selected standard sentence pattern; and

speech synthesizing means of performing speech synthesis of the identified response standard sentence pattern by use of prosody information previously assigned to at least the identified response standard sentence pattern.